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TECH CENTER 1600/2900

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SEQUENCE LISTING

<110> Hanke, Paul D.

<120> Feedback-Resistant Pyruvate Carboxylase Gene from *Corynebacterium*

<130> 1533.1230001

<140> US 09/974,973

<141> 2001-10-12

<150> US 60/239,913

<151> 2000-10-13

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<170> PatentIn version 3.0

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Ala Ala Lys Lys Val Lys Ala Asp Ala Ile Tyr Pro Gly Tyr Gly Phe	
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Glu Ser Thr Pro Ser Lys Asn Ile Asp Asp Ile Val Lys Ser Ala Glu	
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gct gat gat tcc aag gaa cgt cgc aac agc ctc aac cgc ctg ctg ttc Ala Asp Asp Ser Lys Glu Arg Arg Asn Ser Leu Asn Arg Leu Leu Phe 980 985 990			2976
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Thr Ala Ser Val Asp Gly Lys Ile Glu Arg Val Val Val Pro Ala	
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gca acg aag gtg gaa ggt ggc gac ttg atc gtc gtc gtt tcc taa	3474
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Leu Glu Thr Gly Ala Ala Thr Val Ala Ile Tyr Pro Arg Glu Asp Arg

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Glu 85	Gly Ser Pro Val	Lys 85	Ala Tyr Leu Asp 90	Ile Asp Glu Ile Ile Gly 95
Ala 100	Ala Lys Lys Val	Lys 100	Ala Asp Ala 105	Ile Tyr Pro Gly Tyr Gly Phe 110
Leu 115	Ser Glu Asn Ala	Gln 115	Leu Ala Arg Glu 120	Cys Ala Glu Asn Gly Ile 125
Thr 130	Phe Ile Gly Pro	Thr 130	Pro Glu Val Leu 135	Asp Leu Thr Gly Asp Lys 140
Ser 145	Arg Ala Val Thr	Ala 145	Ala Lys Lys Ala 150	Gly Leu Pro Val Leu Ala 160
Glu 165	Ser Thr Pro Ser	Lys 165	Asn Ile Asp Asp 170	Ile Val Lys Ser Ala Glu 175
Gly 180	Gln Thr Tyr Pro	Ile 180	Phe Val Lys Ala 185	Val Ala Gly Gly Gly Gly 190
Arg 195	Gly Met Arg Phe	Val 195	Ser Ser Pro Asp 200	Glu Leu Arg Lys Leu Ala 205
Thr 210	Glu Ala Ser Arg	Glu 210	Ala Glu Ala Ala 215	Phe Gly Asp Gly Ser Val 220
Tyr 225	Val Glu Arg Ala	Val 225	Ile Asn Pro Gln 230	His Ile Glu Val Gln Ile 240
Leu 245	Gly Asp Arg Thr	Gly 245	Glu Val Val His 250	Leu Tyr Glu Arg Asp Cys 255
Ser 260	Leu Gln Arg Arg	His 260	Gln Lys Val Val 265	Glu Ile Ala Pro Ala Gln 270
His 275	Leu Asp Pro Glu	Leu 275	Arg Asp Arg Ile 280	Cys Ala Asp Ala Val Lys 285
Phe 290	Cys Arg Ser Ile	Gly 290	Tyr Gln Gly Ala 295	Gly Thr Val Glu Phe Leu 300

Val Asp Glu Lys Gly Asn His Val Phe Ile Glu Met Asn Pro Arg Ile  
305 310 315 320

Gln Val Glu His Thr Val Thr Glu Glu Val Thr Glu Val Asp Leu Val  
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Lys Ala Gln Met Arg Leu Ala Ala Gly Ala Thr Leu Lys Glu Leu Gly  
340 345 350

Leu Thr Gln Asp Lys Ile Lys Thr His Gly Ala Ala Leu Gln Cys Arg  
355 360 365

Ile Thr Thr Glu Asp Pro Asn Asn Gly Phe Arg Pro Asp Thr Gly Thr  
370 375 380

Ile Thr Ala Tyr Arg Ser Pro Gly Gly Ala Gly Val Arg Leu Asp Gly  
385 390 395 400

Ala Ala Gln Leu Gly Gly Glu Ile Thr Ala His Phe Asp Ser Met Leu  
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Val Lys Met Thr Cys Arg Gly Ser Asp Phe Glu Thr Ala Val Ala Arg  
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Ala Gln Arg Ala Leu Ala Glu Phe Thr Val Ser Gly Val Ala Thr Asn  
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Ile Gly Phe Leu Arg Ala Leu Leu Arg Glu Glu Asp Phe Thr Ser Lys  
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Val Thr Val Asn Lys Pro His Gly Val Arg Pro Lys Asp Val Ala Ala  
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Pro Ile Asp Lys Leu Pro Asn Ile Lys Asp Leu Pro Leu Pro Arg Gly  
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Ser Arg Asp Arg Leu Lys Gln Leu Gly Pro Ala Ala Phe Ala Arg Asp  
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Leu Arg Glu Gln Asp Ala Leu Ala Val Thr Asp Thr Thr Phe Arg Asp  
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Ala His Gln Ser Leu Leu Ala Thr Arg Val Arg Ser Phe Ala Leu Lys  
565 570 575

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Ser Gly Val Asp Ile Phe Arg Ile Phe Asp Ala Leu Asn Asp Val Ser  
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Ile Val Ala Ala Phe Ala His Thr Arg Arg Asp Thr Gly Leu Ser Leu

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Ser	Phe	His	Arg	Ser	Phe	Ala	Ser	Glu	Ala	Val	Arg	Ile	Gly	Thr	Glu	50			55			60			
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Ala	Lys	Lys	Val	Lys	Ala	Asp	Ala	Ile	Tyr	Pro	Gly	Tyr	Gly	Phe	Leu		85		90					95	
Ser	Glu	Asn	Ala	Gln	Leu	Ala	Arg	Glu	Cys	Ala	Glu	Asn	Gly	Ile	Thr		100		105				110		
Phe	Ile	Gly	Pro	Thr	Pro	Glu	Val	Leu	Asp	Leu	Thr	Gly	Asp	Lys	Ser		115		120				125		
Arg	Ala	Val	Thr	Ala	Ala	Lys	Lys	Ala	Gly	Leu	Pro	Val	Leu	Ala	Glu	130		135				140			
Ser	Thr	Pro	Ser	Lys	Asn	Ile	Asp	Glu	Ile	Val	Lys	Ser	Ala	Glu	Gly	145		150		155					160
Gln	Thr	Tyr	Pro	Ile	Phe	Val	Lys	Ala	Val	Ala	Gly	Gly	Gly	Gly	Arg		165		170					175	
Gly	Met	Arg	Phe	Val	Ala	Ser	Pro	Asp	Glu	Leu	Arg	Lys	Leu	Ala	Thr		180		185				190		
Glu	Ala	Ser	Arg	Glu	Ala	Glu	Ala	Ala	Phe	Gly	Asp	Gly	Ala	Val	Tyr		195		200			205			
Val	Glu	Arg	Ala	Val	Ile	Asn	Pro	Gln	His	Ile	Glu	Val	Gln	Ile	Leu	210		215				220			
Gly	Asp	His	Thr	Gly	Glu	Val	Val	His	Leu	Tyr	Glu	Arg	Asp	Cys	Ser	225		230		235					240
Leu	Gln	Arg	Arg	His	Gln	Lys	Val	Val	Glu	Ile	Ala	Pro	Ala	Gln	His		245		250					255	
Leu	Asp	Pro	Glu	Leu	Arg	Asp	Arg	Ile	Cys	Ala	Asp	Ala	Val	Lys	Phe		260		265				270		
Cys	Arg	Ser	Ile	Gly	Tyr	Gln	Gly	Ala	Gly	Thr	Val	Glu	Phe	Leu	Val		275		280				285		

Asp	Glu	Lys	Gly	Asn	His	Val	Phe	Ile	Glu	Met	Asn	Pro	Arg	Ile	Gln
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Ala	Gln	Met	Arg	Leu	Ala	Ala	Gly	Ala	Thr	Leu	Lys	Glu	Leu	Gly	Leu
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Thr	Gln	Asp	Lys	Ile	Lys	Thr	His	Gly	Ala	Ala	Leu	Gln	Cys	Arg	Ile
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Thr	Ala	Tyr	Arg	Ser	Pro	Gly	Gly	Ala	Gly	Val	Arg	Leu	Asp	Gly	Ala
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Ala	Gln	Leu	Gly	Gly	Glu	Ile	Thr	Ala	His	Phe	Asp	Ser	Met	Leu	Val
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Lys	Met	Thr	Cys	Arg	Gly	Ser	Asp	Phe	Glu	Thr	Ala	Val	Ala	Arg	Ala
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Gln	Arg	Ala	Leu	Ala	Glu	Phe	Thr	Val	Ser	Gly	Val	Ala	Thr	Asn	Ile
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Ile	Ala	Thr	Gly	Phe	Ile	Ala	Asp	His	Pro	His	Leu	Leu	Gln	Ala	Pro
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Pro	Ala	Asp	Asp	Glu	Gln	Gly	Arg	Ile	Leu	Asp	Tyr	Leu	Ala	Asp	Val
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Thr	Val	Asn	Lys	Pro	His	Gly	Val	Arg	Pro	Lys	Asp	Val	Ala	Ala	Pro
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His	Gln	Ser	Leu	Leu	Ala	Thr	Arg	Val	Arg	Ser	Phe	Ala	Leu	Lys	Pro
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Ala	Ala	Glu	Ala	Val	Ala	Lys	Leu	Thr	Pro	Glu	Leu	Leu	Ser	Val	Glu
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Ala	Trp	Gly	Gly	Ala	Thr	Tyr	Asp	Val	Ala	Met	Arg	Phe	Leu	Phe	Glu
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Asp	Pro	Trp	Asp	Arg	Leu	Asp	Glu	Leu	Arg	Glu	Ala	Met	Pro	Asn	Val
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Asn	Ile	Gln	Met	Leu	Leu	Arg	Gly	Arg	Asn	Thr	Val	Gly	Tyr	Thr	Pro
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Tyr	Pro	Asp	Ser	Val	Cys	Arg	Ala	Phe	Val	Lys	Glu	Ala	Ala	Ser	Ser	625	630	635	640
Gly	Val	Asp	Ile	Phe	Arg	Ile	Phe	Asp	Ala	Leu	Asn	Asp	Val	Ser	Gln	645	650	655	
Met	Arg	Pro	Ala	Ile	Asp	Ala	Val	Leu	Glu	Thr	Asn	Thr	Ala	Val	Ala	660	665	670	
Glu	Val	Ala	Met	Ala	Tyr	Ser	Gly	Asp	Leu	Ser	Asp	Pro	Asn	Glu	Lys	675	680	685	
Leu	Tyr	Thr	Leu	Asp	Tyr	Tyr	Leu	Lys	Met	Ala	Glu	Glu	Ile	Val	Lys	690	695	700	
Ser	Gly	Ala	His	Ile	Leu	Ala	Ile	Lys	Asp	Met	Ala	Gly	Leu	Leu	Arg	705	710	715	720
Pro	Ala	Ala	Val	Thr	Lys	Leu	Val	Thr	Ala	Leu	Arg	Arg	Glu	Phe	Asp	725	730	735	
Leu	Pro	Val	His	Val	His	Thr	His	Asp	Thr	Ala	Gly	Gly	Gln	Leu	Ala	740	745	750	
Thr	Tyr	Phe	Ala	Ala	Ala	Gln	Ala	Gly	Ala	Asp	Ala	Val	Asp	Gly	Ala	755	760	765	
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Val	Ala	Ala	Phe	Ala	His	Thr	Arg	Arg	Asp	Thr	Gly	Leu	Ser	Leu	Glu	785	790	795	800
Ala	Val	Ser	Asp	Leu	Glu	Pro	Tyr	Trp	Glu	Ala	Val	Arg	Gly	Leu	Tyr	805	810	815	
Leu	Pro	Phe	Glu	Ser	Gly	Thr	Pro	Gly	Pro	Thr	Gly	Arg	Val	Tyr	Arg	820	825	830	
His	Glu	Ile	Pro	Gly	Gly	Gln	Leu	Ser	Asn	Leu	Arg	Ala	Gln	Ala	Thr	835	840	845	
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Ala	Val	Asn	Glu	Met	Leu	Gly	Arg	Pro	Thr	Lys	Val	Thr	Pro	Ser	Ser	865	870	875	880
Lys	Val	Val	Gly	Asp	Leu	Ala	Leu	His	Leu	Val	Gly	Ala	Gly	Val	Asp	885	890	895	
Pro	Ala	Asp	Phe	Ala	Ala	Asp	Pro	Gln	Lys	Tyr	Asp	Ile	Pro	Asp	Ser	900	905	910	
Val	Ile	Ala	Phe	Leu	Arg	Gly	Glu	Leu	Gly	Asn	Pro	Pro	Gly	Gly	Trp	915	920	925	
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